Public commentary for Oct. 24, 2005 Cap and Trade Workshop

One variant of allowance auctioning that could be considered would be an auction with a safety valve. Allowance bid prices would be limited to a maximum ceiling value, and all bids at the ceiling level would be fulfilled, irrespective of the cap limit. If the cap is not exceeded, then the remaining allowances would be distributed to the remaining highest bidders.

A safety valve may seem to be counterproductive from the standpoint of environmental objectives, since the system would not actually cap emissions and would thus forego the advantage of environmental certainty. (In this context, the cap functions more as a kind of "non-binding target".) But considering how the safety valve can influence the mandated cap limit, there could nevertheless be a significant environmental benefit. Considerations of cost acceptability generally take precedence over environmental goals in setting emissions caps, and without a safety valve, the only way to assure cost acceptability is to set the cap high enough that auction bids and trading prices will not exceed acceptable limits under the most pessimistic cost assumptions. But in practice, costs invariably turn out to be much lower than expected, resulting in the kind of situation typified by the Acid Rain SO2 program, which has compliance costs about five times lower than original expectations, but which caps SO2 at a level five times higher than the threshold of environmental sustainability.

With a safety valve, the cap level need not be so extremely biased toward cost conservatism, because compliance costs are directly controlled. Hence the cap could be set according to environmental requirements. Of course, there is no guarantee that the emissions cap level will actually be attained, but an alternative policy without cost controls would not perform any better unless its costs exceed the safety valve's price ceiling. Furthermore, the safety valve can circumvent one of the primary shortcomings of cap-and-trade systems, that they provide no incentive for reducing emissions below the cap, even if the cost of doing so is modest. This is a serious deficiency if the cap is set at a level far above the limit of sustainability, but is not a drawback if the cap is set according to environmental requirements. Thus, in addition to eliminating cost uncertainty and price volatility, a cap-and-trade system with a safety valve could be structured to maintain regulatory incentives as long as emissions remain above sustainable levels.

Whether the regulatory system actually succeeds in achieving environmental sustainability goals depends on whether the safety valve's price ceiling is sufficiently high to support development and commercialization of sustainable energy technologies. Adverse economic impacts of the regulations on industry can be minimized, enabling it to tolerate a sufficiently high price ceiling, by refunding the revenue from allowance auctions on the basis of energy output. (The refund could be prorated by bid price, i.e., a firm's refund would be proportional to the product of its emissions-related energy output and its bid price, with a proportionality factor determined to match aggregate refunds to total auction revenue.) Output-based refunding of auction proceeds would be analogous to an output-based, free distribution of allowances, in that the system would be revenue-

neutral and would be economically favorable to firms with low energy emissions intensity. But the refunded auction approach may be simpler because even with a free initial distribution, additional allowances may have to be sold at the safety valve price ceiling if the market demand exceeds the cap. With output-based refunding, the price ceiling defined by constraints of political and economic feasibility would be much higher than it could be without the refund, and may be sufficient to induce commercialization of advanced low-emission technologies such as carbon capture and sequesterization.

The issue of cost also has relevance to the topics of Program Scope and Emissions Offsets. A broad scope with maximal use of emissions offsets might be advocated on the grounds that this approach minimizes regulatory compliance costs, but this policy rationale does not take into consideration the distinction between short-term and long-term costs. For example, a power utility might obtain emissions offsets by paying farmers to do no-till farming; but while this could reduce its short-term compliance costs, deferring action to reduce the utility's own emissions may increase its long-term costs (e.g. for having to prematurely retire emissions-intense production facilities that are currently being installed). Free markets can be very effective at minimizing short-term costs, but they need regulatory guidance to appropriately value long-term costs, and it may be advantageous to restrict emissions trading between market sectors in order to focus efforts on long-term emissions-reduction strategies. (This is especially true when the mandated emissions cap is far above the sustainable level.)

Another problem with cost minimization is that if a safety valve is employed, as described above, the regulatory policy does not actually function to minimize costs when the market demand for emission allowances exceeds the cap. In this case the regulations function to constrain costs and minimize emissions. Different price ceilings may be appropriate for different market sectors, and if all sectors are covered within a single emissions auctioning/trading system, the price ceiling would have to be set to accommodate the "least capable" sector (i.e. the one that can tolerate the lowest price ceiling). This compromise can be avoided by segregating the sectors into separate regulatory structures, each with its own emissions cap and price ceiling. The regulations' political and economic viability would be enhanced by maintaining revenue neutrality within each sector.

The safety valve mechanism outlined above represents an intermediate option between two policy extremes. At one extreme, there is no safety valve and the policy is purely "quantity-constrained", i.e., it operates to constrain emissions and minimize costs subject to the emissions constraint. At the other extreme, there is a safety valve and the emissions cap is set to zero. This option is purely "cost-constrained", in that it constrains costs and minimizes emissions. The latter option, in combination with output-based refunding, is equivalent to the "Refunded Emissions Payment" (REP) system used by Sweden to regulate NOx emissions from stationary combustion sources.

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